REMARKS

This is in response to the Office Action mailed on December 23, 2004 where claims 1, 4-18 and 33-35 were pending. With this amendment, claims 1, 7, 9 and 14-15 are amended; claims 12, 17-18, and 33-34 are cancelled; and claim 36 is added. The remaining claims, i.e., claims 4-6, 8, 10, 13, 16, and 35 are unchanged in the application.

Rejection under 35 U.S.C. 1112

Claims 12 and 34 were rejected under 35 U.S.C 112, second paragraph. With this amendment, claims 12 and 34 are cancelled.

Rejection under 35 U.S.C. 102(b)

Of the pending claims, claims 1, 4-5, 8 and 35 were rejected under 35 U.S.C. 102(b) as being anticipated by Strott. Applicants respectfully submit that the amended claims overcome this rejection. For example, the amended claims include the features:

that "the front surface is adapted to interface with the physical property,"

that the "sensor body includes a plurality of openings extending from the front surface to the back surface,"

that the "sensor body includes a continuous solid glass material opposite the plurality of sensing elements from the front surface," and

that the "connection material on the back surface . . . is configured to accommodate connection . . . to an electronics substrate."

These features, when taken together, are not shown or suggested in the prior art under any interpretation of Strott. For example, the surface that is construed to be the front surface of the sensor body in Strott is the top planar surface of element 4 shown in Strott figure 2 in the most reasonable interpretation, as it interfaces with the physical property.

Under this interpretation of Strott, if the sensor body of Strott includes elements 4 and 2, then the openings do not extend trough the sensor body and there is no configurable connection to an electronics substrate on the back surface, i.e., the elements 2 and 5 interface, with materials 8 and 9.

Still under this interpretation, if the sensor body of Strott includes only element 4 and not element 2, then there is no [sensor body] material opposite the sensing elements 3 from the front surface and the adaptable connection to the substrate is on the front surface, not the back surface.

If, on the other hand, the top planar surface of element 4 of Strott figure 2 is the "back surface," the front surface does not interface with the physical property, but either interfaces with element 2 or element 5, both of which are well insulated from the physical property.

None of the possible interpretations show or suggest all of the features of the amended claims. Accordingly, Applicants respectfully submit that the amended claims are patentably distinguishable from Strott, and request removal of the rejection based on 102(b).

Rejection under 35 U.S.C 103(a)

The claims were also rejected under 35 U.S.C. 103(a) based on various combinations of references. Applicants respectfully submit that the amended claims are patentably distinguishable from the combinations of references. Specifically, the amended claims include the features that the "sensor body includes a continuous solid glass material opposite the plurality of sensing elements from the front surface." Because these features are missing from each of the references separately, they would be missing from any proposed combination of the references.

Pending claims 1, 4, 5, 7, 9-10, 15-16 and 35 were rejected as being unpatentable over IBMTDB in view of Nagai or Genova. These references do not teach or suggest that the sensor body include a continuous solid glass material, but instead teach using a silicon material instead of the claimed feature. As mentioned in the application, silicon has several disadvantages that are overcome with the use of a continuous solid glass material in the sensor die.

Pending claims 1, 4, 5, 7, 10 and 35 were rejected as being unpatentable over Nagai in view of IBMTDB. As mentioned above, these references do not teach or suggest all of the features of the amended claims, and therefore all of the features would be missing from any proposed combination of references.

Pending claims 1, 4-9, 11, 14-16 and 35 were rejected as being unpatentable over Ang in view of Nagai or Genova. Ang does not teach or suggest using a continuous glass material. Rather, Ang teaches the use of silicon, epoxy and glass combined together to form a portion of the sensor. The combination does not have the advantageous thermal characteristics of the die of the present claims, and the combination does not overcome the limitations of the prior art. As mentioned above, these references do not teach or suggest all of the features of the amended claims, and therefore all of the features would be missing from any proposed combination of references.

Pending claim 13 was rejected as being unpatentable over IBMTDB or Ang in view of Nagai or Genova as applied above, and further in view of Gerblinger. Of these references, the reference not discussed above is Gerblinger. Gerblinger does not teach using a continuous solid glass material opposite the plurality of sensing elements from the front surface. Rather the glass and ceramic material is in the passivation layer. The material of Gerblinger opposite the sensing element from the passivation layer and front surface is a substrate made from "aluminum oxide." The device of Gerblinger does not have the

advantageous thermal characteristics of the die of the present claims, and the combination does not overcome the limitations of the prior art. As mentioned above, these references do not teach or suggest all of the features of the amended claims, and therefore all of the features would be missing from any proposed combination of references.

Pending claims 6 and 11 were rejected as being unpatentable over IBMTDB or Ang in view of Nagai or Genova, as applied above, and further in view of Kushida. Of these references, the reference not discussed above is Kushida. Kushida does not teach or suggest that the senor body includes a continuous solid glass material, but instead teaches using a foam glass substrate. These references do not teach or suggest all of the features of the amended claims, and therefore all of the features would be missing from any proposed combination of references. In addition, the foam glass does not overcome the disadvantages of the prior art discussed above, and does not provide a robust enough sensor die for high stress applications.

Pending claims 6, 8 and 11 were rejected as being unpatentable over IBMTDB or Ang in view of Nagai or Genova, as applied above, and further in view of Morimisa. Of these references, the reference not discussed above is Morisima. The photosensitive glass substrate 2 pointed out in the Office Action is not part of the sensor die in Morisima. Rather, it is spaced-apart from the sensor die and does not form any part of the "sensor body," as claimed.

In addition, fluid flow travels in the direction of tunnel formed by hollow 4 (column2, 44-50). Accordingly, the underside of the sensor would correspond with "the front surface [that] is adapted to interface with the physical property," as claimed. The photosensitive glass substrate 2 then would not "be opposite the plurality of sensing elements from the front surface," as claimed.

Further, one skilled in the art would not use the teaching in the prior art to incorporate the spaced-apart photosensitive glass substrate into a sensor die. The prior art does not recognize advantageous thermal and strength characteristics of the glass in the sensor die. The prior art does not recognize a way to incorporate the glass into the small sensor die, and instead uses the glass only in the large structure that forms a tunnel for fluid flow.

Based on the above, applicants respectfully requests that the rejections based on 35 U.S.C. 103(a) be withdrawn.

Applicants respectfully submit the amended claims are patentably distinguishable from the prior art of record. Favorable action and allowance are requested.

In the event a telephone conversation would expedite the prosecution of this application, the Examiner may reach the undersigned at (612) 607-7340.

If any fees are due in connection with the filing of this paper, then the Commissioner is authorized to charge such fees including fees for any extension of time, to Deposit Account No. 50-1901 (Reference 9028-322).

Respectfully submitted

By _____
Rudolph P. Hofmann, Reg. No. 38,187
Customer No. 34295

OPPENHEIMER WOLFF & DONNELLY LLP
45 South Seventh Street, Suite 3300
Minneapolis, MN 55402-1609
Telephone: (612) 607-7340
Facsimile: (612) 607-7100
Email: RHofmann@oppenheimer.com